

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Fall of Roof Accident
August 3, 2005

at

Mine No. 1
Stillhouse Mining LLC
Cumberland, Harlan, Kentucky
ID No. 15-17165

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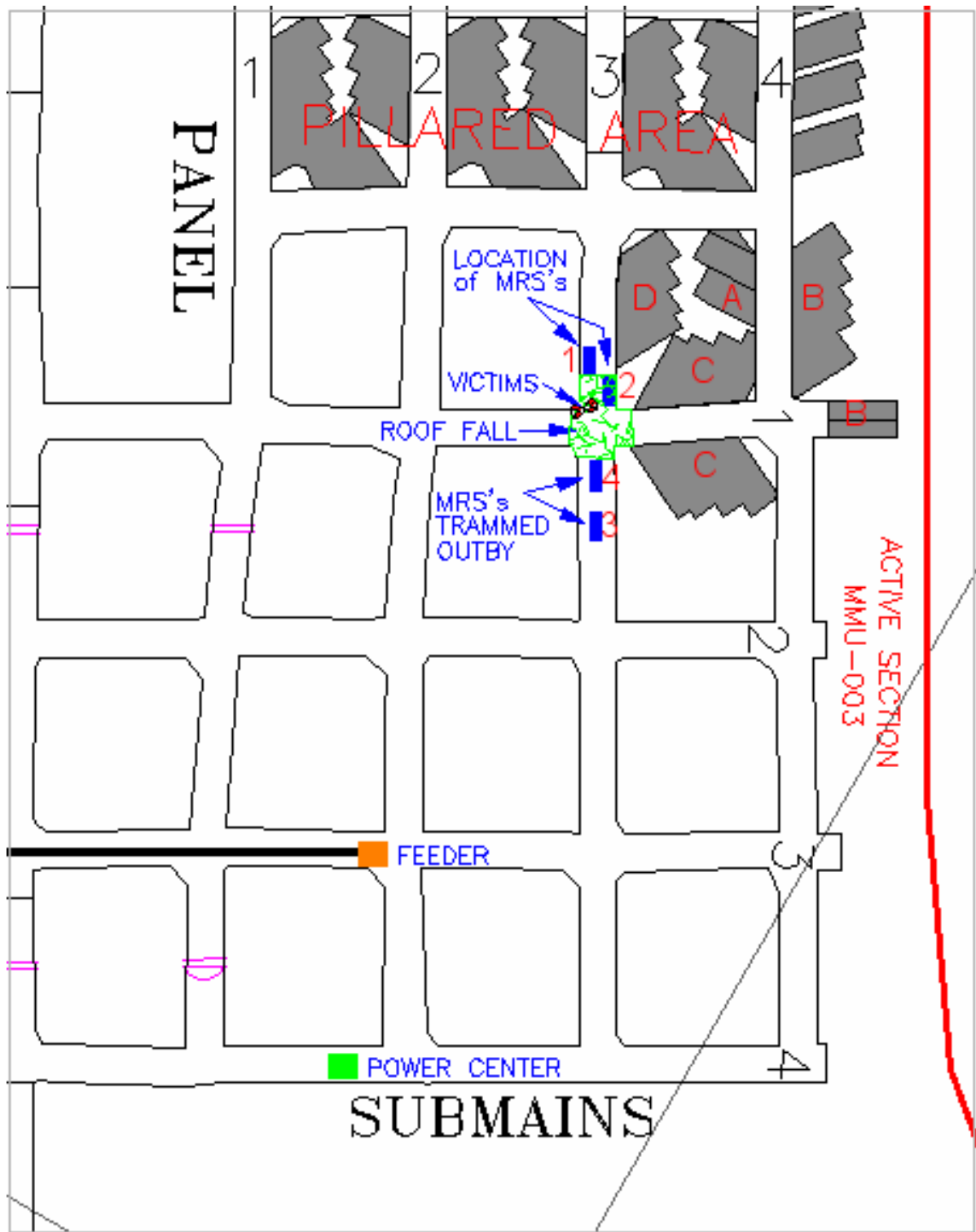
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ACCIDENT SITE



OVERVIEW

At 9:30 p.m. on Wednesday, August 3, 2005, Russell Cole, a 39-year old section foreman with 11 years of mining experience and Brandon Wilder, a 23-year old scoop operator with 36 weeks of mining experience were fatally injured at Stillhouse Mining LLC's Mine No. 1.

The second shift crew was conducting retreat mining on the 003 mechanized mining unit (MMU). After mining the final lifts of a pillar, the crew was moving the four mobile roof support units (MRS) to the next location to be mined. While they were moving the MRS units, a roof fall occurred in the intersection. Eyewitnesses reported that Cole and Wilder were last seen standing beside the No. 2 MRS in by the intersection. After the fall, workers called out to Cole and Wilder, but there was no response. Wilder's body was recovered on Thursday, August 4, 2005, and pronounced dead by Harlan County Deputy Coroner Gerald Scott at 5:30 a.m. Cole's body was recovered on Sunday, August 7, 2005, and pronounced dead by the Deputy Coroner at 7:18 a.m.

The accident occurred because of a confluence of factors, including failures to comply with the approved Roof Control Plan, training, faulty pillar recovery methods, and failure to correct hazardous conditions.

GENERAL INFORMATION

Stillhouse Mining LLC's Mine No. 1 is located near Cumberland, Harlan County, Kentucky. Coal is produced on the first and second shift with maintenance being conducted on the third shift. The mine produces approximately 5,000 tons of raw coal daily using the room and pillar method. The mine provides employment for 73 underground workers (including contractors) and three surface workers.

Coal is extracted with remote-controlled continuous mining machines equipped with flooded bed scrubbers utilizing a 40-foot extended cut plan. Shuttle cars are used to transport coal to the section belt conveyor feeder. Coal is then transported to the surface by a series of belt conveyor flights. The mine is ventilated with a single mine fan, utilizing an exhausting system. The mine liberated 131,628 cubic feet of methane in a 24 hour period when it was last sampled.

The mine was opened into the 48 to 120-inch thick Harlan seam by seven drift openings in 1999. As the mine developed, the parting became thicker in the coal seam, splitting the seam into the Upper and Lower Harlan seams. Mining was confined to the Upper Harlan seam until early in 2005, when three entries were ramped down to the Lower Harlan seam through an interburden of approximately 35 feet. At the time of the accident, coal was being mined on two sections, the 002 and 003 MMUs. The 002 MMU was advancing six entries in the Upper Harlan seam. The 003 MMU was recovering pillars in the Lower Harlan seam, at the intersection of the 1 Left Panel and a set of submains (each of which were four entries wide).

The approved Roof Control Plan provided two sequences for recovering pillars: one for mining a row of pillars from left to right, and another for mining right to left. The maximum entry width permitted by the plan was 20 feet with a provision for 22 feet when excessive rib sloughing was encountered. Prior to this accident, the last reported roof fall occurred on June 6, 2000. Over the life of the mine, the operator recovered pillars in multiple panels in the Upper Harlan seam. However, this was the first area where pillars were recovered in the Lower Harlan seam at this mine.

The principal officers for the mine at the time of the accident were:

Richard Gilliam.....	Member
Marvin Gilliam.....	Member
R. Thomas Asbury	Safety Director
Roger Howard.....	Superintendent

Prior to the accident, the Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection on June 30, 2005. There was an on-going regular inspection being conducted at the time of the accident. The Non-Fatal Days Lost (NFDL) injury incidence rate for the mine in 2004 was 14.03 compared to a National NFDL rate of 5.56 for 2004.

DESCRIPTION OF ACCIDENT

On August 2, 2005, at approximately 11:00 p.m., Mark Shelton, third shift mine foreman, instructed Shawn Brock, third shift 003 MMU section foreman, on the procedures for setting up the section for a projected 90-degree change in pillar recovery direction as 003 MMU retreated out of the 1 Left Panel and into the Submains. Brock understood that he was to set up the 003 MMU so that pillars could be recovered from left to right across the submains, beginning with the last pillar on the right side of the 1 Left Panel. Later that night, Brock's crew pulled the 003 MMU power center and beltline back and started to set up the mining equipment for the change in direction. However, this task was not completed at the end of the shift.

At approximately 7:00 a.m., the first shift 003 MMU crew entered the mine and traveled to the section. Doyle Coldiron, first shift 003 MMU section foreman, checked the working places. The crew positioned the MRS units and the continuous mining machine to begin pillar recovery of the last pillar on the right side the 1 Left Panel. Instead of recovering pillars across the Submains from this point, Coldiron intended to recover the last row of pillars from the 1 Left Panel, mining from right to left across the panel.

Ken Grubbs, first shift continuous mining machine operator, began mining, alternating lifts to the left and right from the 1 Left Panel No. 4 entry (cuts A and B, as shown on the Accident Site sketch on page ii). After the fourth lift (B) was mined to the right of the entry, the conveyor belt stopped. At this time they moved the continuous mining machine around the second outby block to re-route the cable and set breaker timbers in the last open crosscut between the Submains Nos. 1 and 2 entries. After the belt was started, they mined three more lifts (B) to the right of the No. 4 entry and two lifts

straight off the inby end of the Submains No. 1 entry. Grubbs mined the lifts to a maximum depth of approximately 30 feet in order to prevent draw rock from falling on the continuous mining machine. At the end of the shift, the continuous mining machine was parked in the second to last crosscut between the Submains Nos. 1 and 2 entries.

At approximately 3:00 p.m., the second shift 003 MMU crew entered the mine and traveled to the section. John Lee, second shift continuous mining machine operator, checked the continuous mining machine and then mined alternating left and right lifts (C) from the Submains No. 1 entry. The MRS units were moved as the lift sequence advanced. At about the time that the second lift was being mined, Bill Nantz, shuttle car operator, noticed that the roof was working in the Submains No.1 entry, outby the intersection with the No. 3 entry of the 1 Left Panel. He informed James Boggs, MRS operator/roof bolting machine operator, of the condition.

Boggs began checking test holes in the intersection. He checked two 6-foot test holes by inserting a metal tape into the hole and no hazards were detected. He then checked a 12-foot test hole in the affected intersection and found a separation at 11 feet and 5 inches, where his tape would hang on a crack. Boggs told Cole about the crack. Cole checked the 12-foot test hole, but took no corrective action and made no further mention to Boggs on the matter. Boggs continued checking to see if the separation was widening after every two or three shuttle cars, by letting the end of the tape hang on the bottom of the separation and then pushing the tape up to the top of the crack. While mining was being conducted on each side of the Submains No. 1 entry, Boggs told Gary Rutherford, acting second shift mine foreman, about the crack and Rutherford indicated no concern regarding the condition. Mining continued, alternating between the left and right lifts from the Submains No. 1 entry. The MRS units were moved as each lift (C) was completed.

The continuous mining machine was then positioned in the No. 3 entry of the 1 Left Panel, where the crew mined lifts (D) from the remainder of the pillar to the right of the entry. During this time, the Nos. 1 and 2 MRS units were located in the 1 Left Panel No. 3 entry and were moved outby with each lift, while the Nos. 3 and 4 MRS units were stationary across the Submains No. 1 entry. As the continuous mining machine was backing out of the final cut (D), a piece of draw rock, approximately 18 inches thick by 7 feet long, fell off the machine onto the mine floor of the 1 Left panel No. 3 entry, in front of the No. 1 MRS (which was located on the left side of the entry, adjacent to the solid pillar).

Boggs and Bobby Gross, shuttle car operator, began moving the Nos. 1 and 2 MRS units forward. They advanced the No.1 MRS to the fallen draw rock. The No. 2 MRS was then moved completely past the No. 1 MRS, to the edge of the intersection. When they then attempted to push the fallen draw rock with the No. 1 MRS, the draw rock wedged between the coal rib and the No. 2 MRS track, with the No. 1 MRS still located completely inby the No. 2 MRS.

They next began moving the Nos. 3 and 4 MRS units out of the Submains No. 1 entry. Boggs lowered the No. 3 MRS, moved it forward into the intersection, and spun the unit so that the cable was facing the pillared portion of the 1 Left Panel. At this point, the unit lost traction in loose material on the mine floor. Cole started the No. 3 MRS on manual and freed the unit. Gross then took remote control of the No. 3 MRS and moved it to the midpoint of the crosscut between the Submains Nos. 1 and 2 entries. Boggs then lowered the No. 4 MRS and moved it into the intersection. He spun the MRS and began moving it into the crosscut behind the No. 3 MRS. Hatfield and Nantz met Gross and Boggs in the crosscut to help them continue moving the Nos. 3 and 4 MRS units.

At this time, 9:30 p.m., Cole and Wilder were standing beside the No. 2 MRS, with Cole at the manual controls, when the mine roof fell. The fall extended from the front of the No. 1 MRS, through the intersection, and 13 feet into the crosscut to the back of the No. 4 MRS. Gross looked toward Cole and Wilder as the MRS lights disappeared beneath the falling rock.

Boggs, Gross, Hatfield, and Nantz ran out of the crosscut. Suspended dust from the roof fall limited their visibility. They yelled for Cole and Wilder, but heard no response. Noise from the still operating No. 2 MRS hydraulic motor hampered their ability to listen for Cole and Wilder. Gross went to the mine telephone and called for help. Boggs tried to start the No. 4 MRS to raise it against the mine roof, but the power for the No. 4 MRS was de-energized. He then tried to shut off the No. 2 MRS by remote control, but it would not stop. Lee went to the power center and de-energized the breaker, which shut off the No. 2 MRS. Boggs, Hatfield, and Lee then went around the pillar to check for Cole and Wilder. However, the roof fall blocked all access to the intersection. There was still no sign of Cole and Wilder.

RECOVERY ACTIVITIES

Rutherford and Ira Sargent, third shift outby foreman, arrived on the 003 MMU and spoke with the section crew to determine the last known locations of Cole and Wilder. They directed the men to set the No. 4 MRS at its current location in the Submains crosscut. They then directed the miners to move the No. 3 MRS to the Submains No. 1 entry, at the approach to the roof fall nearest to Cole and Wilder, and set it up, along with additional timbers. Miners deemed nonessential to the recovery activities were sent to the surface.

At 10:30 p.m., Daniel Johnson, Supervisor at MSHA's Harlan Field Office, was informed of the accident. Johnson immediately contacted John Pyles, Assistant District Manager (Enforcement), and Robert W. Rhea, Harlan Field Office Supervisor. Pyles immediately contacted Norman G. Page, District Manager, informing him of the accident. Johnson and Pyles then made other phone calls to have recovery teams, investigation teams and a central command setup in the District 7 Barbourville Office.

Johnson arrived at the mine site and was joined by Lonnie (Bud) Moore, mine superintendent. Johnson verbally issued a Section 103(k) order and discussed with

Moore actions that needed to be taken immediately. They discussed notifying families, establishing a command center, setting up security, getting roof support material under ground, getting transportation for recovery efforts, utilizing all available man power in the recovery effort, getting non-essential personnel outside, and establishing a check system for recovery personnel entering and exiting mine. When Darlas Day, Coal Mine Inspector, arrived at the mine, he and Johnson entered the mine with Office of Mine Safety and Licensing (OMSL) inspectors George Johnson and Daven Hoskins.

A recovery plan was developed by the mine operator, as required by Section 103(k) of the Mine Act, and approved by MSHA and OMSL. The recovery began by setting additional supports in the Submains No. 1 entry and utilizing a scoop to remove the rock. At 3:25 a.m. on August 4, 2005, Wilder was located, recovered, and transported to the surface. He was pronounced dead by the Deputy Coroner at 5:30 a.m., as the recovery workers continued searching for Cole. At 6:15 a.m., a second roof fall occurred, extending approximately 25 feet into the recovery area, injuring two recovery personnel, Daven Hoskins, OMSL Inspector, and Mark Shelton, third shift mine foreman. Shelton was operating the scoop at the time of the fall.

A revised recovery plan was developed by the mine operator and approved by MSHA and OMSL. This plan provided for recovery through the crosscut between the Submains Nos. 1 and 2 entries. The recovery activities resumed, and continued non-stop, until 5:00 a.m. on August 7, 2005, when Cole was located, recovered, and transported to the surface. Cole was pronounced dead by the Deputy Coroner at 7:18 a.m.

INVESTIGATION OF THE ACCIDENT

The investigation was conducted in cooperation with OMSL. A list of those persons who participated in the investigation is contained in Appendix A of this report. Investigation team members traveled to the mine on August 4, 2005, reviewed the roof control plans and maps, and gathered information about the accident. The underground portion of the investigation commenced on August 7, 2005, upon completion of recovery activities. The team traveled underground where measurements, photographs, and mapping were conducted of the 003 MMU. Other documents and relevant information were gathered by the team. A spot inspection was conducted concurrently with the investigation to address enforcement issues that did not contribute to the accident. On August 9, 2005, Combs began a review of the training at the mine. Persons having knowledge of the facts regarding the accident were interviewed by MSHA and OMSL on August 9 and 11, 2005.

DISCUSSION

Geologic Conditions

The immediate roof on the 003 MMU was comprised of thinly to thickly bedded shale and siltstone. Reportedly, the bolted portion of the immediate roof remained somewhat intact in the fall and had to be cut with the continuous mining machine during recovery operations. Overlying rock layers observed during the investigation had fallen in slabs ranging in thickness between 2 and 16 inches. However, the extensive nature of the roof falls and the recovery/rehabilitation work, along with the proximity of the pillar line, prevented detailed observations of much of the area immediately surrounding the fall site. The mining height at the fall site was approximately 96 inches.

The closest known core hole to the fall site is BU4807C, located approximately 1,200 feet to the northeast. The core log for this hole describes the rock sequence in ascending order directly above the Lower Harlan coal seam as follows:

- *1.92 feet of dark shale*
- *25.42 feet of sandy, grey shale*
- *4.50 feet of grey shale*
- *1.67 feet of dark shale*

The overburden depth at the site of the accident is approximately 1,820 feet. Maps provided by the operator show over-mining of the Upper Harlan and Lower Harlan seams within the boundaries of the Stillhouse Mine No.1 reserve. Although there are a total of five different mines (only one of which is active) above the Stillhouse Mine No. 1 reserve, only two of these mines encroach upon the area nearby or directly over the accident site. The abandoned High Splint Mine workings are approximately 1,500 feet above the fall site. A High Splint Mine barrier pillar, approximately 200 feet wide, is situated directly over the site of the accident. The overburden depth at the elevation of the High Splint Mine workings is approximately 300 feet. The second abandoned mine, which appears directly over the fall site, is the Darby Mine. The log from core hole BU4807C, located approximately 1,200 feet northeast of the fall site, shows the Darby Mine workings separated from the Lower Harlan by approximately 175 feet. The available overlay map shows the fall site to be directly under an extensive pillared area in the Darby Mine.

A complete list of seams mined above the Stillhouse Mining LLC, Mine No. 1 is listed below. There are no mine workings below this mine.

- Kellioka seam abandoned workings present approximately 155 feet above;
- Darby seam abandoned workings present approximately 175 feet above;
- Owl seam both abandoned and active workings approximately 235 feet above;
- F seam both abandoned and inactive workings approximately 355 feet above;
- High Splint seam abandoned workings approximately 1,500 feet above.

Ground conditions in the four-entry Submains were evaluated for three crosscuts outby the fall. Observations in this area revealed the presence of several minor roof cutters and pot-outs. Substantial differences were noted in the degree of rib sloughage between the entries and the crosscuts, apparently associated with cleat orientation. The deterioration seen on the entry ribs was minimal and limited to corner sloughing or light perimeter sloughing.

Roof Control Practices

The accident site was developed between June 22, 2005 and June 28, 2005. Pillar recovery was conducted over the entire length of the four-entry 1 Left Panel, a distance of 875 feet. The coal pillars surrounding the accident site were two different sizes. The pillars in the panel were nominally 90 feet by 70 feet and the pillars of the mains were 90 feet by 80 feet with an overburden depth of approximately 1,820 feet. The width of the crosscut and Submains No. 1 entry immediately outby the roof fall was approximately 20 feet.

The mine roof was supported on advance with 3/4-inch x 48-inch, grade 40, fully grouted rebar bolts on four feet x four feet spacing. Also there were five, 0.6-inch diameter, 10-foot cable bolts installed in the intersection with three feet of resin at the anchor point. The cable bolts were installed one on each corner of the intersection and one in the middle of the intersection. Test holes were drilled in accordance with the approved Roof Control Plan in the intersection of each entry to a depth of 12 feet (2 feet deeper than the cable bolts) to make roof evaluations for the purpose of pillar recovery. The failure plane occurred at or slightly (up to two feet) above the cable bolt anchorage, which corresponded to the separation detected by Boggs in the test hole at the accident site.

Pillar recovery was accomplished using four MRS units and a 'Christmas tree' or 'twinning' extraction sequence in which alternating left and right lifts are mined from the entries and final lifts are mined from the crosscut. Prior to the accident, six rows of pillars (a total of 18 individual pillars) and the right barrier off the 1 Left No. 4 entry were recovered.

Lift Sequence

Mine management intended that pillar recovery be conducted from left to right across the submains following completion of the sixth row of pillars in the 1 Left Panel. Lonnie (Bud) Moore, mine superintendent, discussed the intended lift sequence with Coldiron, including how to make the 90 degree change of direction in pillaring, on the day of the accident, prior to the first shift beginning. However, at the beginning of the first shift, Coldiron decided to mine right to left across the 1 Left Panel. Once the first lift was taken from the left side of the No. 4 entry, the intended left to right cut sequence across the Submains could not be conducted. Later that shift, Moore visited the 003 MMU and saw that lifts had been mined on the left side of the No. 4 panel entry. He then instructed them to stop taking lifts out of that pillar. At 3:05 p.m., Coldiron called out a preshift examination to Cole, which reported no hazards. They did not discuss which lifts he had

mined or which pillar plan (right to left) was being utilized. Moore also did not inform the second shift about the lifts being taken out of the pillar. When the second shift began mining, they started using the left to right pillar plan across the Submains, as originally intended by mine management. Mine management did not distribute plans showing the intended cut sequence in writing for reference on the section, nor did they change the cut sequence once Moore recognized that the intended cut sequence had been compromised.

Mining Methods

While mining the last lifts out of the pillar, miners were exposed to faulty pillar recovery methods. There were two roadways being utilized when mining the last lifts from the pillar. After the last lift was taken from the right side of the Submains No. 1 entry, the crosscut should have been blocked by the No. 3 and 4 MRS units and only the roadway through the Submains No. 1 entry used. The continuous mining machine cable was also located through the crosscut, which was located adjacent to a pillar that had been reduced in size with no additional roof support provided.

Mobile Roof Supports

The four MRS units on the 003 MMU were rated as having a capacity of 600 tons and could be extended to a maximum height of 111 inches. Two radio remote control units and two umbilical cord control units were available on the section to remotely operate the MRS units. The radio remote control units were powered by disposable 9-volt batteries and had an effective operational range of 200-300 feet.

Each MRS unit is equipped with (hands on) or onboard manual controls which are intended for use by maintenance personnel when servicing the units. The onboard controls are enclosed on the machine frame and are accessed by opening a (flip-up) door. When the MRS units are operated utilizing the onboard manual controls, the signal from the remote control units is overridden. This is consistent with the No. 2 MRS not responding to signals from the remote control following the accident because Cole was manually operating the unit.

The approved Roof Control Plan required MRS units to be moved sequentially in pairs so that each unit would not be offset more than one half unit length from its companion unit. However, this provision was not being complied with at the time of the accident. To comply with the plan, the No. 2 MRS should not have been moved past the No. 1 MRS and the Nos. 3 and 4 MRS units should have remained set until the Nos. 1 and 2 MRS units were brought forward into the intersection. Also, the MRS operators were not in a remote location while moving the MRS units, they were in the intersection. This exposed Cole and Wilder to hazards associated with inadequately supported roof immediately adjacent to the incorrectly positioned MRS units and faulty cut sequence.

Training

Interview statements indicated that mine management did not ensure that the miners understood the lift sequences to be taken while performing the 90 degree change in

direction of pillaring or of their normal pillar plan. Mine management did not ensure that the miners possessed an understanding of how the mobile roof supports (MRS) were to be positioned or the miner's location when moving the MRS units. During interviews, miners indicated that they would enter the intersection when lowering the units and would sometimes walk as close as five to six feet from the units when lowering them. They also spun the units around so the cable reel was pointed towards the pillared area and they would position themselves between the MRS unit and the pillared area to watch the MRS unit cable. They discussed moving the MRS units manually when they moved them to the next area to be mined.

Cole was not task trained in the proper operation of the MRS units being used on the 003 MMU. No record could be provided to indicate that task training had been conducted in the previous 12 months.

Hazardous Conditions; Posting, Correcting and Recording

Under the provisions of 30 CFR 75.363, any hazardous condition found by the mine foreman or equivalent mine official, assistant mine foreman or equivalent mine official, or other certified persons designated by the operator for the purposes of conducting examinations, shall be posted with a conspicuous danger sign where anyone entering the areas would pass. A hazardous condition shall be corrected immediately or the area shall remain posted until the hazardous condition is corrected.

Mine management failed to post the area where a separation had been detected in a roof test hole with a conspicuous danger sign or take corrective action.

Rutherford and Cole knew about the separation at 11 feet and 5 inches, in the intersection. Boggs informed Cole about the separation and this was confirmed by a witness. Also a different witness confirmed that Boggs told Rutherford about the separation.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic causes of the accident that were correctable through reasonable management controls. During the analysis, causal factors were identified that, if eliminated, would have either prevented the accident or mitigated its consequences.

Listed below are causal factors identified during the analysis and their corresponding corrective actions implemented to prevent a recurrence of the accident:

1. **Causal Factor:** Established standards, policies and administrative controls were not being followed in that provisions in the approved Roof Control Plan regarding mining sequence and MRS operation were not being followed.

Corrective Action: The operator ceased retreat mining and provisions that had permitted pillar recovery were removed from the approved Roof Control Plan. The

operator developed an Action Plan to address the lack of communication between mine management personnel.

2. **Causal Factor:** Mine management failed to train all persons in the proper pillar lift sequence and operation of the MRS units.

Corrective Action: The operator developed and implemented an Action Plan that ensured that all miners were trained in all aspects of the Roof Control and Ventilation Plans before returning to mining operations.

3. **Causal Factor:** Mine management failed to take corrective action when a separation was found in a 12-foot test hole at 11 feet and 5 inches. Mine management allowed mining operations to continue through the intersection in which the roof fall occurred.

Corrective Action: Mine management shall reinforce the importance of recognizing and taking corrective actions when hazards are encountered. Mine management shall develop procedures to prevent miners from being exposed to hazardous conditions such as inadequately supported mine roof.

4. **Causal Factor:** Mine management exposed miners to the hazards of faulty pillar recovery methods that caused miners to work inby the pillared area of the submains to take the final lifts of the pillar.

Corrective Action: Mine management shall develop procedures to ensure that unsafe pillar recovery methods are not performed.

5. **Causal Factor:** Mine management failed to ensure that miners are properly task trained in the proper operation of the MRS units.

Corrective Action: Mine management properly task trained miners in the operation of MRS units. Mine management reviewed task training procedures and developed a system to ensure that all miners are properly task trained prior to operating equipment.

6. **Causal Factor:** Mine management failed to correct the hazard presented by the separation at the intersection, or post a conspicuous danger sign to prevent miners from being exposed to hazards at the intersection where the separation was found at 11 feet 5 inches, and where the lifts were taken out of the backside of the pillar.

Corrective Action: Mine management will ensure that certified persons know and understand the hazards presented by similar separations. Mine management will ensure that certified persons who find hazardous conditions post a conspicuous danger sign to warn miners about the hazards.

CONCLUSION

The accident occurred because of a confluence of factors. The lift sequence for extraction of pillars in the approved Roof Control Plan was not complied with on the 003 MMU. Mine management failed to comply with additional safety precautions for the use of MRS units contained in the approved Roof Control Plan while retreat mining was being performed. Mine management failed to adequately train all personnel working on the 003 MMU in pillar recovery methods while utilizing MRS systems. Mine management failed to adequately support the roof where persons were required to work or travel following the detection of a separation in the mine roof, at 11 feet 5 inches up into the roof in the intersection which collapsed resulting in the fatal injuries. Mine management failed to correct the hazard presented by the separation or to post the intersection with a conspicuous danger sign to prevent miners from entering the area and being exposed to a hazard. Mine management exposed miners to hazards related to faulty pillar recovery methods on the 003 MMU by having miners travel inby an area of second mining. Mine management failed to ensure that all personnel were task trained in the operation of MRS units.

Approved By:

Norman G. Page
District Manager

Date

ENFORCEMENT ACTIONS

1. A 103 (K) Order, No. 7540190 was issued to Stillhouse Mining LLC to ensure the safety of all persons until an investigation was completed and the area deemed safe.
2. A 104 (d) (2) Order, S&S, High negligence, No. 7554241, was issued to Stillhouse Mining LLC for a violation of 75.220(a)(1): Mine management was not complying with the approved Roof Control Plan when retreat mining (pillaring) was being performed on the 003 MMU. The lift sequence approved in the plan was not being followed when mining the last pillar prior to a roof fall occurring which resulted in fatal injuries to two miners. This resulted in improperly placed MRS units and caused miners to work and travel in inadequately supported approaches to the adjacent pillared area.

The approved Roof Control Plan permits only one roadway to the final lifts during retreat mining. However, mine management allowed the use of two roadways to mine the final lifts on the last pillar.

Information was obtained by an on-site investigation and interviews conducted during a fatal accident investigation.

3. A 104 (d) (2) Order, S&S, Reckless Disregard negligence, No. 7554242, was issued to Stillhouse Mining LLC for a violation of 75.220(a)(1): Mine management was not complying with the additional safety precautions required by the approved Roof Control Plan while using Mobile Roof Support (MRS) units to perform retreat mining on the 003 MMU.

Employees operating the MRS units were not positioned in a remote location while the units were being moved to another area. The miners were located in the intersection adjacent to where pillars had been partially removed while moving the Nos. 3 and 4 MRS units.

The No. 1 MRS was not positioned as required by the plan. The No. 1 MRS was positioned behind the No. 2 MRS.

The No. 2 MRS was being operated manually prior to the fall. The MRS units had been operated manually on prior occasions. The No. 3 MRS had been operated manually during the shift when it became stuck. The first shift foreman also admitted manually operating a MRS on other occasions during retreat mining.

Information was obtained by an on-site investigation and interviews conducted during a fatal accident investigation.

4. A 104 (d) (2) Order, S&S, High negligence, No. 7554243, was issued to Stillhouse Mining LLC for a violation of 75.220(a) (1): Mine management failed to adequately train all personnel working on the 003 MMU in pillar recovery methods when Mobile Roof Support (MRS) units were being used. When interviewed, miners from both shifts on the 003 MMU did not exhibit a clear understanding of the requirements of the approved Roof Control Plan, including the lift sequence when mining pillars, the proper location for miners when the MRS units are being moved, and that the MRS units should only be operated by the remote control unit while second mining of pillars.

Information was obtained by an on-site investigation and interviews conducted during a fatal accident investigation.

5. A 104 (d) (2) Order, S&S, Reckless Disregard negligence, No. 7554244, was issued to Stillhouse Mining LLC for a violation of 75.202(a): Mine management failed to adequately support or otherwise control the roof where persons were required to work or travel. Two miners were moving Mobile Roof Support (MRS) units on the 003 MMU when a roof fall occurred which resulted in the death of both miners. Both miners were located in close proximity to the MRS units being moved. Also, the two remaining MRS units on the section had been removed from the approach to the adjacent pillared area, at the intersection immediately outby the location where the miners were working. Prior to the accident, mine management was aware of a separation in the mine roof that was detected in a 12-foot test hole at 11 feet 5 inches in the intersection from which the MRS units were removed, which was also where the roof fall occurred. The roof in the intersection was supported by 4-foot fully grouted roof bolts and 10-foot cable bolts. Additional roof support was not installed or other action taken to assure persons were protected from hazards related to falls of the roof after the separation was detected.

Information was obtained by an on-site investigation and interviews conducted during a fatal accident investigation.

6. A 104 (d) (2) Order, S&S, Reckless Disregard negligence, No. 7554245, was issued to Stillhouse Mining LLC for a violation of 75.363(a): Hazardous conditions found and known by mine management were not immediately corrected and the area was not posted with a conspicuous danger sign until the hazardous conditions were corrected. During the second shift, two members of mine management were informed that a separation at 11 feet 5 inches existed in the test hole located in the intersection where the roof fall ultimately occurred. However, no corrective action was taken. Pillar mining continued in the area and miners were exposed to the hazardous condition. Moreover, mine management was aware that two MRS units were moved out of the intersection prior to miners continuing to work in the area. The roof fall was approximately 12 feet thick. Two miners suffered fatal injuries as a result of working in the area exposed to these hazardous conditions.

In addition, mine management directed first, second and third shifts to mine the pillars in a left to right sequence across the submains. During the shift prior to the roof fall, mine management observed lifts taken by the first shift crew on the backside corner of the pillar and the adjacent wall. Once taken, the planned left to right sequence of the submains could not be conducted without adequate corrective action. Mine management failed to inform the second shift about the lifts taken on first shift and failed to ensure that adequate corrective action was taken. The second shift crew continued the left to right lift sequence as previously directed by mine management. This increased the hazardous conditions that contributed to the roof fall.

Information was obtained by an on-site investigation and interviews conducted during a fatal accident investigation.

7. A 104 (a) Citation, S&S, High negligence, No.7554246, was issued to Stillhouse Mining LLC for a violation of 48.7: Mine management failed to provide Russell Cole with task training in the operation of MRS units. Cole suffered fatal injuries when a roof fall occurred while he was manually operating a MRS in an intersection.

Information was obtained by an on-site investigation and interviews conducted during a fatal accident investigation.

Appendix A
Persons Participating in the Investigation

Office of Mine Safety and Licensing

<u>Name</u>	<u>Title</u>
Tracy Stumbo	Chief Accident Investigator
Johnny Green	Deputy Chief Accident Investigator
George Johnson	Inspector Principle
Tim Fugate	Safety Analyst

Mine Safety and Health Administration

<u>Name</u>	<u>Title</u>
Debbie Combs.....	Training Specialist (EFS)
Danny Harmon.....	CMS&H Inspector/Supervisor Roof
Marvin Hoskins.....	CMS&H Inspector/Accident Investigator
Jim W. Langley.....	CMS&H Inspector/Supervisor
Carla B. Marcum.....	CMS&H Inspector/Ventilation Specialist
William Williams.....	Mining Engineer Tech. Support
Joseph Zelanko.....	Mining Engineer/Supervisor Tech. Support

